

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A semiconductor device comprising:

a semiconductor substrate including a main surface;

a MOSFET including a double gate structure provided on a side of the main surface of the semiconductor substrate, the double gate structure comprising top and bottom gate electrodes, the bottom gate electrode being located at a lower level than the main surface; [[and]]

an isolation region for isolating the MOSFET from other elements comprising a trench provided on the side of the main surface of the semiconductor substrate and an insulator provided in the trench, the isolation region having a region in the trench around the MOSFET, the region having a deeper bottom than other regions in the trench, and all of the region having the deeper bottom being covered with the top gate electrode; and

a side gate electrode and a side gate insulating film provided in the region having the deeper bottom than the other regions in the trench around the MOSFET,

wherein a part of the insulator is provided in the region having the deeper bottom than the other regions under the side gate electrode.

2. (Previously Presented) The semiconductor device according to claim 1, wherein the bottom gate electrode is provided in the semiconductor substrate, a part of

the side of the main surface of the semiconductor substrate is placed between the top gate electrode and bottom gate electrode, and the MOSFET further comprises:

a top gate insulating film provided between the top gate electrode and the semiconductor substrate; and

a bottom gate insulating film provided between the semiconductor substrate below the top gate electrode and the bottom gate electrode.

3. (Canceled)

4. (Currently Amended) A semiconductor device comprising:

a semiconductor substrate;

a MOSFET including a double gate structure comprising top and bottom gate electrodes and provided on the semiconductor substrate; and

an isolation region for isolating the MOSFET from other elements comprising a trench provided on a surface of the semiconductor substrate and an insulator provided in the trench, the isolation region having a region in the trench around the MOSFET, the region having a deeper bottom than other regions in the trench, and all of the region having the deeper bottom being covered with the bottom gate electrode,

wherein the semiconductor substrate is provided with at least one empty space, and the bottom gate electrode and a bottom gate insulating film are provided in the at least one empty space, and

10. (Previously Presented) The semiconductor device according to claim 7, wherein the bottom gate electrode, the side gate electrode, and the top gate electrode are unified.

11. (Previously Presented) The semiconductor device according to claim 8, wherein the bottom gate electrode, the side gate electrode, and the top gate electrode are formed of a common conductive film.

12. (Original) The semiconductor device according to claim 11, wherein the common conductive film is a semiconductor film containing an impurity or film containing metal.

13. (Previously Presented) The semiconductor device according to claim 4, wherein a part of the at least one empty space remains unfilled by the bottom gate electrode and the bottom gate insulation film.

14. (Currently Amended) The semiconductor device according to claim 4, wherein the at least one empty space comprises an upper wall ~~which includes~~ including a flat region.

15. (Currently Amended) The semiconductor device according to claim ~~[[5]]~~ 4, wherein the at least one empty space is arranged in a thickness direction of the

the trench opens a part of an upper wall of the at least one empty space, and a side gate insulating film and a side gate electrode are successively provided on a side of the semiconductor substrate on the at least one empty space opened by the trench.

5. (Canceled)

6. (Currently Amended) The semiconductor device according to claim ~~[[5]]~~ 4, further comprising a top gate insulating film formed between the top gate electrode and the semiconductor substrate, wherein the bottom gate insulating film, the side gate insulating film, and the top gate insulating film are unified.

7. (Previously Presented) The semiconductor device according to claim 6, wherein the bottom gate insulating film, the side gate insulating film, and the top gate insulating film are formed of a common thermal oxide film.

8. (Currently Amended) The semiconductor device according to claim ~~[[5]]~~ 4, wherein the bottom gate electrode, the side gate electrode, and the top gate electrode are unified.

9. (Previously Presented) The semiconductor device according to claim 6, wherein the bottom gate electrode, the side gate electrode, and the top gate electrode are unified.

semiconductor substrate, and the bottom gate insulating film and the bottom gate electrode are provided in the at least one empty space.

16. - 20. (Canceled)

21. (Previously Presented) The semiconductor device according to claim 1, wherein the whole of the region having the deeper bottom is located under the top gate electrode.